#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

# (19) World Intellectual Property Organization International Bureau



### - 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881) 1 (1881)

## (43) International Publication Date 26 May 2005 (26.05.2005)

#### **PCT**

# (10) International Publication Number WO 2005/047002 A1

(51) International Patent Classification7: B41J 2/01, 2/21

(21) International Application Number:

PCT/JP2004/017223

(22) International Filing Date:

12 November 2004 (12.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 2003-386761

17 November 2003 (17.11.2003) JI

(71) Applicant (for all designated States except US): RICOH COMPANY, LTD. [JP/JP]; 3-6, Nakamagome 1-chome, Ohta-ku, Tokyo 1438555 (JP).

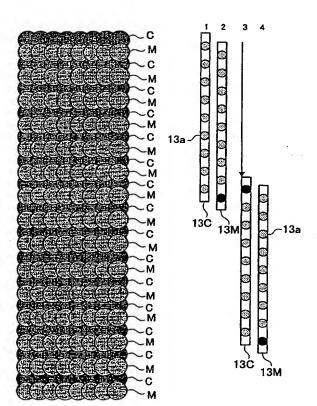
(72) Inventor; and

(75) Inventor/Applicant (for US only): FUKUYASU, Hidehito [JP/JP]; c/o Ricoh Tottori Software Technology Co. Ltd., Aishin Chiyomi Bldg., 100 Chiyomi 1-chome, Tottori-shi, Tottori 6800911 (JP).

- (74) Agent: ITOH, Tadahiko; 32nd Floor, Yebisu Garden Place Tower, 20-3, Ebisu 4-chome, Shibuya-ku, Tokyo 1506032 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: INK JET PRINTING DEVICE AND IMAGE FORMING APPARATUS



(57) Abstract: An ink jet printing device comprises a head unit, a head-unit moving unit, a recording-medium moving unit, and a control unit controlling the head unit, the head-unit moving unit, and the recording-medium moving unit. The control unit is configured to carry out printing so that a rear-end portion of discharge nozzles in an array direction after printing of a printing region and a front-end portion of the discharge nozzles in the array direction before printing of a non-printed region overlap each other with respect to a sub-scanning direction, and invalid nozzles that do not discharge ink drops are determined from among arbitrary ones of overlapping discharge nozzles including a front-end portion and a rear-end portion in the array direction of the discharge nozzles.

### 

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### Published:

with international search report